

# INSIDE SSD

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VOLUME II

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## FULL SPEED AHEAD

**RICHARD BARAZOTTO TAKES  
THE HELM OF OSDPD** (see page 2)



## MANAGEMENT CORNER

### New OSDPD Director

*Elizabeth Ewell*

Richard M. Barazotto became Director of the Office of Satellite Data Processing & Distribution (OSDPD) on February 23, 2004. Mr. Barazotto will lead OSDPD in implementing organizational, business process, and cultural changes required to meet significant challenges, assume necessary risks, and perform well in a more complex and less predictable future.

OSDPD faces numerous challenges which include:

Developing the capability to process and distribute several orders of magnitude more data in the future;

Budgetary constraints;

Processing and producing more complex and time-sensitive products;

Providing high levels of service to an increasing number of users with diverse and rapidly changing requirements; and

Identifying, assessing, and communicating its performance, value, and priorities to stakeholders.



*Richard Barazotto takes SES oath of office*

Mr. Barazotto brings a strong leadership background and commitment to developing OSDPD into an elite workforce that is uncompromisingly results-oriented. Eagerness to learn, receptivity to change, resilience, and a positive attitude are critical attributes which must now become common practice among all OSDPD members.

Mr. Barazotto previously served as OSDPD Special Programs Manager and was Deputy Director of OSDPD from April 2003 until his selection as Director. He was the Program Manager for NOAA's participation in the Japanese Advanced Land Observing Satellite (ALOS) mission and received the NOAA Administrator's Award in 2003 for his distinguished leadership of the ALOS program.

Prior to joining OSDPD in 2001, Mr. Barazotto established NOAA's National Coastal Data Development Center (NCDDC) and served as the Center's first director, for which he received the Department of Commerce Bronze Medal. Mr. Barazotto's career includes numerous senior

management positions within NOAA. He was Director of NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) from 1997 to 2000; and previously served in OSDPD from 1974 until 1983. During his tenure in the Satellite Services Division (SSD), he was instrumental in establishment of the New Orleans Satellite Field Services Station and was one of the first two NOAA employees to serve during the inception of the Navy/NOAA Joint Ice Center (JIC), the predecessor organization to the National Ice Center (NIC).

Mr. Barazotto is a retired Commander in the United States Naval Reserve. He has been the Commanding Officer/Executive Officer of several Naval Reserve units.

We welcome Mr. Barazotto as our new OSDPD Director. Prepare for and embrace change. Develop a passion for accomplishment. Full-speed ahead!

## PRODUCTS & SERVICES DEVELOPMENT

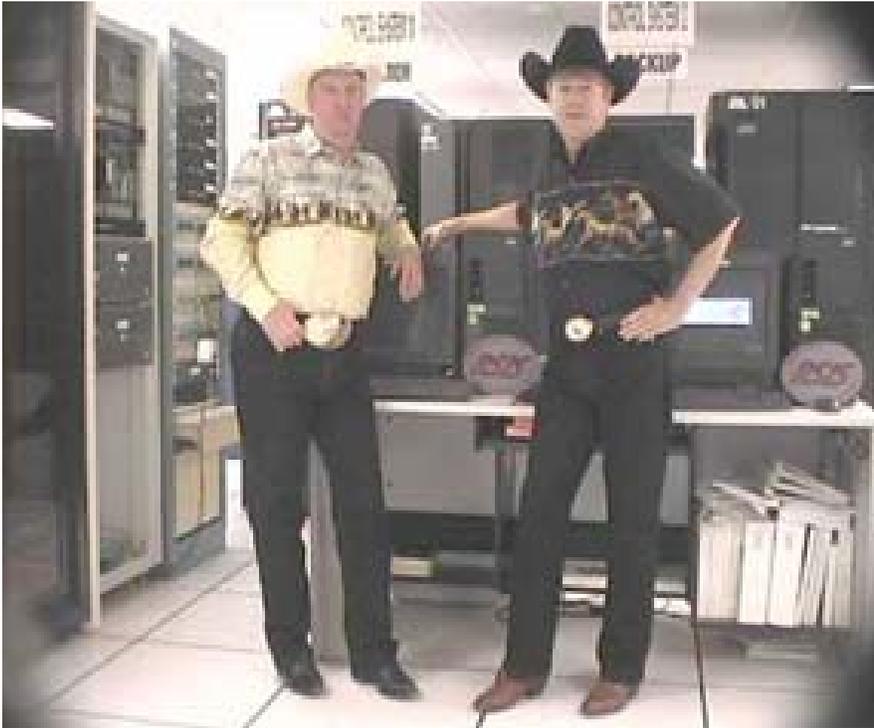
### RSIS Ropes New IBM SSA Storage

*Ziyadah Joynes*

The SATEPS Satellite Server systems for SSD/IPB reside on twin IBM RS/6000 SP, scaleable parallel architecture, with three nodes in each tower rack. The nodes receive Geostationary Operational

Environmental Satellite (GOES) 9, 10, 12, and Meteosat raw images through the man computer

Russ Lancaster and George Crum of RS Information Systems (RSIS) rode the fence line and roped in



*Russ Lancaster (left) and George Crum (right)*

Interactive Data Access System (McIDAS) ingest systems. The IBM/SP Servers remap, sectorize, and make available to customers all of the images on a 24-hour basis using the McIDAS ADDE protocol. The twin IBM systems provide production service and a complete backup for development and node switch-over capability in case of a node failure.

The production SP2 server receives all of its satellite ingest signals from the fiber optic network (Passive Optical Network or PON), while the SP1 backup server receives its ingest signals on the T-3 lines. Each tower SP system has an attached disk storage rack.

three new IBM 7133 SSA, Serial Storage Architecture, Model D40 Disk Drawer subsystems.

The new rack consists of 48 high performance disks. The disks are 36.4 gigabytes each, giving a total of 1.7 terabytes of satellite data storage on the SP2 production system.

The new disk subsystems are a factor of 10 times faster than the older model disk. The new rack system is modular, allowing future disk subsystems to be added or changed according to the requirements. The disks are configured as RAID-5 with hot spares to keep the file systems up

## GIS Updates

*Ralph Meiggs & Marlene Patterson*

The Satellite Services Division Geographic Information System Development Team (GDT) recognized the need for spatial data products in formats compatible with commercial software. Over the past several years, many users have requested image products in GeoTIFF or other formats that would enable them to integrate our image data with other GIS data. Geographic Information Systems (GIS) are becoming more widely used for data dissemination and integration. SSD is striving to provide satellite products in a more widely used format for interoperability in commercial software. The primary GDT members are Ralph Meiggs, Marlene Patterson, Tad Franson and Zedong Zhang.

The National Oceanic and Atmospheric Administration (NOAA) has an enterprise-wide effort to develop a geospatial foundation model for data sharing and is working toward the government-wide effort for the concept of a Geospatial One-Stop website. The Federal Geographic Data Committee (FGDC) is involved in the I-Team Geospatial Information Initiative which is working toward implementing the National Spatial Data Infrastructure (NSDI) to integrate and disseminate accurate spatial data. The goal is to offer data in more widely used universal formats that are spatially enabled with FGDC compliant metadata through a web interface.

SSD is contributing to this effort by utilizing the GDT to convert existing image products into standard GIS-compatible formats with accompanying metadata. Working with the NOAA GIS Committee, the GDT is providing input at the NOAA level regarding standards for GIS within NOAA. Offering data in more widely used formats which are spatially enabled will not only bring more users, but will also prepare us for integrating our data to the National Geospatial Data Clearinghouse and NOAA Geospatial One-Stop or any other web interface data-sharing portal.



*Data Available on the Satellite Services Division GIS Web Page at [www.gis.ssd.nesdis.noaa.gov](http://www.gis.ssd.nesdis.noaa.gov).*

Casting image products in a more widely used format aligns with the SSD Mission and Vision Statements by providing “near real-time environmental data from polar and geostationary satellites to a diverse community, and pioneering development and implementation of superior quality environmental satellite services and products which surpass customer requirements.”

GIS development in SSD also aligns with the OSDPD mission to “provide environmental satellite data and derived products to domestic and foreign users, serving as an interface with users from the civil sector and providing plans for initiation of new services to meet user requirements.”

The GDT submitted an abstract and paper to the American Meteorological Society annual meeting in January. It was presented by Tiffany Vance of the National Marine Fisheries Service in Seattle to a standing room only crowd. Ms. Vance is a member of the NOAA GIS Committee. Users are very excited that NESDIS satellite data and products will be available in a GIS.

Not only is the GDT working on converting products to other formats; but working with Satellite Analysis Branch, the team is bringing GIS to SSD’s operational environment.

In pursuit of this effort, the SSD GDT has developed a web page for the public to access products which are available in formats compatible with GIS and other commercial software. The web page has graphics of examples of the data available, links to the public file transfer protocol (FTP) site, links to the interactive internet mapping pages for the fire and smoke detection products and the snow and ice mapping products, currently under development, as well as links to other SSD web pages and related information. The SSD GIS web page is located at [www.gis.ssd.nesdis.noaa.gov](http://www.gis.ssd.nesdis.noaa.gov).

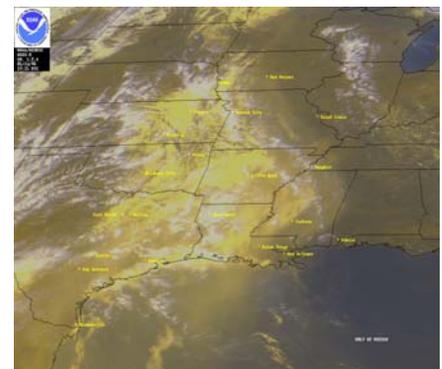
## Partnership Between NOAA/NESDIS and Mexican National Weather Service

*Brian Hughes and Jamie Kibler, SAB*

### Background

The summer of 1998 was an unusual one for the residents of the Gulf coast states of Texas and Louisiana. Sweltering heat and humidity, factors familiar to many in the South, were taking a back seat to a more ominous and unhealthy hazard – a thick blanket of smoke.

Meteorologists in SSD’s Satellite Analysis Branch (SAB) quickly determined the source for the choking smoke – hundreds of wildfires burning along Southern Mexico and the Yucatan Peninsula. GOES-8 imagery showed numerous “hot spots” along with a stream of smoke seen in daytime visible imagery. This smoke was pouring out into the Gulf of Mexico, and mid-level winds were transporting the dangerous smoke into the Southern United States.



*Image from May 14, 1998 depicts a yellow/brown haze. The smoke came from the widespread Mexican fires.*

# INSIDE SSD

Local governments were inundated with calls from many residents, some of whom were directly affected by the smoke. Air quality throughout the south became dangerously low, and the national media soon ran the smoke as its leading news story including an NBC Nightly News interview with analyst Rob Fennimore. Not long after the fires began, SAB worked closely with the National Weather Service (NWS) Hydrometeorological Prediction Center (HPC) in establishing a daily smoke and fire analysis of Central and Southern Mexico.

SAB analysts used high resolution imagery from the polar orbiting Advanced Very High Resolution Radiometer (AVHRR) instruments, as well as infrared and visible imagery from GOES. These fires had barely begun to wane when SSD was again called for help, this time for widespread fires in northern Florida. Thus, the NOAA/NESDIS Fire and Smoke program was born.

## **Fire and Smoke Product Development**

The Satellite Analysis Branch's Fire and Smoke program has evolved quickly since the first hand-drawn paper analysis in 1998. We now use dedicated McIDAS workstations to complement the suite Hazard Mapping System (HMS) workstations for generating high-resolution fire and smoke analysis, using a blend of GOES, AVHRR, and MODIS (MODerate resolution Imaging Spectroradiometer) measurements.

These data are used as input to complex fire detection algorithms developed by teams at NASA, NOAA, and the University of Wisconsin. Locations of probable fires and extent of smoke plumes are saved into a Geographical Information Systems (GIS) database available to forecasters and firefighters across the country.

"Hot Spots," a term used for fires detected in infrared satellite imagery, as well as smoke location and extent, are viewed on HMS workstations in SAB. This interface was developed by Timothy Kasheta, a contractor for RSIS. Tim modified existing analysis software, based on the Environment for Visualization of Imagery (ENVI), to display GOES, Polar-orbiting Operational Environmental Satellite (POES), and MODIS data over a user-defined area. He also added a capability to overlay hot spots detected by the automated algorithms directly onto the satellite imagery. A database of "false" hotspots such as power plants, oil refineries, and trash incinerators was added to aid the analyst in determining real fires. Recently, enhancements were made to the system to save smoke plume polygons and to create false color Red-Green-Blue (RGB) imagery.

## **International Partnership**

In November 2003, the SSD Fire and Smoke Program entered a new phase of development and prototype operations based upon the need to monitor fire and smoke activity across national borders. The American Fellows Program, a Presidential initiative designed to

provide senior officials from nations of the Americas with fellowships in selected U.S. government agencies, awarded two fellowships to distinguished Mexican Weather Service personnel. The fellowships were awarded to Angel Teran, the Chief of Environmental Monitoring of the Servicio Meteorologico Nacional (SMN or Mexican Weather Service), and Rosa Torres, SMN specialist in fire monitoring, satellites, and computer applications. The fellowships began on March 1 and will continue through May 31. During this period, Mr. Teran and Mrs. Torres will work with SAB analysts detecting wildfires and smoke using the established tools and techniques described above. Each group will use GOES, POES, and MODIS data over their defined sector. The program is in the initial stage of mitigating the joint U.S.-Mexican fire and smoke problem. The results of the collaboration can be seen in the fire maps located on the SSD public web server at <http://www.ssd.noaa.gov/PS/FIRE/hms.html>.

The specified time period is considered the busiest time of the year for Mexican fires, and a new HMS sector covering Mexico and Central America was created for use by the fellows. Tim Kasheta demonstrated exceptional programming and management skills during the implementation of this additional sector. He prepared methods to seamlessly integrate the fire and smoke detections analyzed and generated by SAB and the visiting SMN fellows. In addition,

he expertly guided the analysts through modifications introduced in the HMS, and developed a separate graphical interface so that the Mexican fellows and the SAB analysts could work side-by-side. These efforts were performed without interruption to the operational HMS system, and were well received by those conducting the fire and smoke analysis.



*Tim Kasheta of RSIS, right, demonstrates some of the new features of the HMS Mexico Fire Sector for Mr. Angel Teran of SMN.*

In addition, Mr. Teran is arranging a teleconference with several important Mexican government officials who are interested in efforts to combat the devastating Mexican fires. Hopefully, the Secretary of Semanart (a cabinet level official, similar to the U.S. Secretary of the Interior), the General Director of the National Weather Service, and the General Director of the National Forestry Commission will participate. They will be given a demonstration of the satellite techniques and procedures that Mr. Teran and Mrs. Torres use operationally to detect fires, as well as engage in

discussions regarding other aspects of the collaboration.

### The Fellowship Participants



*Angel Refugio Teran*

Angel Refugio Teran was born in Cuernavaca, Morelos, Mexico. Mr. Teran is Chief of Environmental Monitoring of the Mexican Weather Service, and has been working for the Mexican Government since 1991, where he has held such eminent positions as Professor and Sub-director of the National Forestry Inventory Department. He received a degree in Geophysical Engineering from The National Polytechnic Institute in 1985. He later received a Master's Degree from Murray State University in Geographic Information Systems in 1991. He also has certificates in forest fires and volcanic activity detection, and in the use of the Hydro-Estimator satellite precipitation technique from NOAA.



*Rosa Alicia Torres*

Rosa Alicia Torres was born in Mexico City, Distrito Federal, Mexico. She received a degree in Electronic & Communications Engineering from The National Polytechnic Institute in 1993. She received a Master's Degree from Monterrey Technological Institute in Computer Science in May 2003. Mrs. Torres is currently Network Computer Project Leader for the Mexican Weather Service and has been working for the Mexican Government since 1993, where she has held such prestigious positions as Systems Developer Support Engineer.

## PROFESSIONAL ACHIEVEMENTS

### Russell Lancaster RSIS Employee of the Month

*Ziyadah Joynes*

Russell (Russ) Lancaster has earned special recognition for his exemplary initiative and technical expertise. He was selected as Employee of the Month for February 2004 by the RSIS Science and Engineering Division.

# INSIDE SSD

To comply with Department of Commerce CIO mandate, all systems must be maintained at current supported operating system levels and likewise, be current on security fixes and patches. NESDIS and SSD currently have more than 120 RedHat Linux systems. RedHat recently announced on very short notice that they were terminating all support for Linux versions running at SSD and that no future security patches would be available for those legacy versions. Consequently, all operational SSD Linux systems had



*Russell Lancaster*

to be upgraded by December 31, 2003, or risk being vulnerable to security compromise.

Mr. Lancaster not only coordinated a comprehensive system upgrade, but also performed many of the upgrades himself. He verified that systems, system and data access control lists, and required application software were installed and configured correctly. He then coordinated with the applications counterparts to verify that the applications and systems were validated prior to being migrated into production.

Mr. Lancaster's efforts also included swapping Internet addresses when migrating systems between production and backup, and working with other NESDIS programmers on their cluster and upgrading applications software to ensure compatibility with the new Linux version.

Mr. Lancaster's thoroughness and dedication are especially noteworthy, since he accomplished this major system upgrade with minimal data loss and downtime for the customer during an 8-week period in addition to his regular tasking and on-call activities.

## OSEI'S Critical Daily Imagery

*Jason Taylor*

At the request of Dr. Pablo Clemente-Colon of the Office of Research and Applications (ORA), Operational Significant Event Imagery (OSEI) analysts Jason Taylor and George Stephens provided critical daily imagery production and analysis support for a research cruise which traced the impact of dust from the Saharan Desert as it headed west across the Atlantic Ocean. The AERosol Ocean Science Expedition (AEROSE 2004) (<http://orbit35i.nesdis.noaa.gov/orad/sar/oceansar/AEROSE2004/>) conducted on board the NOAA research ship *Ronald H. Brown*, began on February 29, leaving Bridgetown, Barbados and ended on March 26 in San Juan, Puerto Rico. The key goal of the cruise was to gather measurements to better understand the effects that traveling

Saharan dust aerosols have on the atmosphere and Atlantic Ocean. Jason Taylor processed and enhanced GOES-12 Full Disk, Meteosat, MODIS, and AVHRR imagery of Saharan dust in support of ORA research. NOAA published a press release on the cruise on March 15th at: <http://www.noaanews.noaa.gov/stories2004/s2185.htm> highlighting SSD/OSEI imagery.

## COMMUNITY OUTREACH

### RSIS Gives to Local Charities

*Hope Albritton-Smedley*

Community service will receive special emphasis as RSIS collaborates with local charities to develop opportunities for both contractors and government staff to demonstrate support of local communities through charitable contributions. Many interests are represented with each quarter devoted to a special emphasis. Please review the background information for each organization. Plan to be a part of this special effort as we reach beyond the boundaries of our daily work lives by responding to the needs of others less fortunate than ourselves.

## APRIL

### **Suited for Change**

Suited for Change is a founding member of The Women's Alliance, a national organization of independent community-based "sister organizations" which provide professional attire, career skills, training, and related services to low-income women seeking employment. For more information, see <http://www.suitedforchange.org>

### **Call to Protect**

The Call To Protect campaign collects wireless phones to benefit victims of domestic violence. Proceeds from the sale of phones help fund agencies that fight domestic violence and are also used to support the educational efforts of the Wireless Foundation. Other phones are refurbished and become lifelines for domestic violence victims when they are faced with an emergency situation. For more information, see <http://www.wirelessfoundation.org>

## JULY

### **School Supply Drive**

We will organize a drive to help local school children get off to a good start! Many of our children start school in September without the supplies they need. We will join WUSA 9 News, SunTrust Bank, and the Girl Scout Council of the Nation's Capital to make sure Washington area children are ready for school.

## OCTOBER

### **Coat & Clothing Drive**

Goodwill collects donated clothing and household goods to sell in its 1,900 retail stores and provides contract labor services to business and government. The organization also receives funding from donations as well as corporate, foundation and government grants. Nearly 85 percent of revenues are channeled into job training and placement programs and other critical community services. For more information, see <http://www.goodwill.org>

## JANUARY (2005)

### **Food Drive**

The Capital Area Food Bank is the largest public, non-profit food and nutrition education resource in the Metro Area. Through a network of more than 750 member feeding programs, each year the organization distributes millions of pounds of food to the community and educates thousands of local residents about hunger, poverty, and nutrition issues. For more information, see <http://www.capitalareafoodbank.org>

Contributions to any of these charities may be made from the 1st through 15th of a designated month in the RSIS offices located on the fifth floor of the NOAA Science Center at 5200 Auth Road, Camp Springs, Maryland 20746. Please contact:

Hope Albritton-Smedley if you desire more information at [Hope.AlbrittonSmedley@noaa.gov](mailto:Hope.AlbrittonSmedley@noaa.gov)

## SSD EVENTS

### SSD's Own Sponsors Women's Program

*Alfreda Carter*

Alfreda Carter, SSD, and Maureen Chiarizia, ORA, co-sponsored a Women's History Month Program, March 16, 2004. Focusing on this year's national theme, "Women Inspiring Hope and Possibility", the program's agenda was quite informational.



*Hui Xu (left), Maureen Chiarizia (middle)  
Alfreda Carter (right)*

Lori Simmons, NESDIS EE0 and Diversity Manager, gave a presentation about the many contributions women have made to the nation, followed by an interactive trivia game. Cathy Turner, from the Virginia Hospital Center, gave a seminar which covered an array of women's health issues.

Many who attended the program, shared tidbits about their culture, wore ethnic attire, and brought native food for sharing.

*The INSIDE SSD is a publication for NESDIS employees. Address comments to Ziyadah Joynes [ziyadah.j-joynes@noaa.gov](mailto:ziyadah.j-joynes@noaa.gov) (301)763-8051 (ext. 100)*